

CLAIMS

1. A flux for soldering which is placed between a solder portion formed on a first electrode and a second electrode when the first electrode is soldered to the second electrode, wherein the flux comprises:

a liquid base material comprising a resin component which is dissolved in a solvent,

an active component which removes an oxide, and

a metal powder made of a metal of which melting point is higher than that of a solder material which forms the solder portion, and

the flux contains the metal powder in an amount in the range between 1 % and 9 % by volume based on a volume of the flux.

2. The flux according to claim 1 wherein the metal which forms the metal powder is at least one selected from the group consisting of gold, silver and palladium each having a purity of not smaller than 90 %.

3. The flux according to claim 1 or 2 wherein the metal which forms the metal powder is unlikely to form a natural oxide film on a surface of the metal powder.

4. The flux according to any one of claims 1 to 3 wherein the metal powder is in the form of thin pieces, scales or dendrites.

5. A flux for soldering which is placed between a solder portion formed on a first electrode and a second electrode when the first electrode is soldered to the second electrode, wherein the flux comprises:

5 a liquid base material comprising a resin component which is dissolved in a solvent,

an active component which removes an oxide, and

a metal powder of which constituting elements are comprised of cores and coatings around the cores,

10 the coatings are made of a metal of which melting point is higher than that of a solder material which forms the solder portion, and

the flux contains the metal powder in an amount in the range between 1 % and 9 % by volume based on a volume
15 of the flux.

6. The flux according to claim 5 wherein the metal which forms the coating of the metal powder element is at least one selected from the group consisting of gold, silver and palladium each having a purity of not smaller than 90 %.

20 7. The flux according to claim 5 or 6 wherein the metal forms the coating of the metal powder element is unlikely to form a natural oxide film on a surface of the metal powder.

8. The flux according to any one of claims 1 to 7
25 wherein the flux contains a rosin or a modified rosin as the

resin component and the active component.

9. The flux according to claim 8 wherein the flux contains, in addition to the active component derived from the rosin or the modified rosin, other active component.

5 10. A soldering process with which a first electrode having a solder portion thereon is soldered to a second electrode, wherein the process comprises:

10 a first step of supplying the flux according to any one of claims 1 to 9 to at least one of the solder portion and the second electrode,

 a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode,

15 a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion becomes in contact with the second electrode, and

 a fourth step of solidifying the molten solder material after the third step.

20 11. The soldering process according to claim 10 wherein the solder portion is a bump which is formed on the first electrode.

 12. The soldering process according to claim 10 or 11 wherein the first electrode is an external connection electrode of an electronic part.

25 13. The soldering process according to any one of

claims 10 to 12 wherein the second electrode is an electrode of a circuit formed on a substrate.

14. The soldering process according to any one of claims 10 to 13 wherein supplying the flux is carried out in
5 a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film.

15. The soldering process according to any one of claims 10 to 14 wherein solidifying the molten solder
10 material is carried out in a cooling step wherein the molten solder material is cooled.